Deposit Insurance in Times of Crises: Safe Haven or Regulatory Arbitrage? (RM/15/026-revised-)

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Abstract: This paper examines the impact of deposit insurance (DI) schemes on bilateral cross-border deposits. Our results suggest that not only the existence of explicit DI, but also DI design features, which reflect its credibility, have an impact on cross-border deposits. Relative differences between reporting and depositor countries also matter. In times of crises, depositors rely more on DI in general, but DI acts primarily as a "Safe Haven" rather than enabling "Regulatory Arbitrage". During the global financial crisis of 2008/09 the emergency actions of bank country governments, which supply and maintain these safe havens, have led to substantial relocations of cross-border deposits. These results suggest that un-coordinated policy actions matter in times of crises and harmonization of DI schemes could have stabilizing effects on the allocation of cross-border deposits.

Keywords: Deposit Insurance; Cross-border deposits; Systemic banking crises; Gravity model
JEL codes: F34; G18

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1. Introduction

Until the 2008/09 financial crisis, cross-border depositing increased rapidly not only in the interbank market, but also in the retail market. After a short period of retrenchment during the crisis, cross-border depositing started growing again and by September 2014 rose to US$26 trillion, of which US$8 trillion constitute cross-border liabilities to non-banks.[1] Global deregulation, regional integration initiatives such as the introduction of the euro and the elimination of capital controls in many developing countries enabled banks to rapidly expand cross-border financial services. For customers, foreign deposit markets offer not only return opportunities and product diversity but foreign deposit insurance (DI) schemes also provide cross-border depositors with an opportunity for regulatory arbitrage and access to a safe haven, especially during financial crises. However, large-scale re-allocations of cross-border deposits could also contribute to an intensification of financial crises. This paper provides an in-depth investigation of the relationship between cross-border retail depositing and national DI schemes in tranquil and crisis times. By evaluating the impact of the emergency actions taken during the 2008/09 global financial crisis, we also provide a unique analysis of the impact of crisis policies on cross-border banking.

The existence of a DI can make a banking market more attractive to cross-border depositors in two ways: First, depositor's funds are guaranteed by the DI agency. Second, a DI scheme may contribute to a more stable banking system by preventing bank runs as argued by Diamond & Dybvig (1983). However, this effect is disputed as moral hazard can induce banks to engage in riskier activities thereby increasing the likelihood of a banking crisis (Demirgüç-Kunt & Detragiache, 1997, 2002; Rossi, 1999). Furthermore, DI schemes may simply provide favored banks with hidden subsidies rather than to reduce systematic risk unless certain design features put limits on moral hazard and adverse selection behavior (Calomiris & Jaremski, 2016). The empirical literature does not yet offer any unambiguous evidence on the relevance of DI for cross-border depositing. For example, Lane & Sarisoy (2000) examine the relationship between an explicit DI and several measures of private capital inflows to developing countries but find no significant link. However, their measures of capital inflows are mainly composed of funds that are not insured.[2] Huizinga & Nicodème (2006) focus more closely on international liabilities including deposits.[3] While they find that non-bank external liabilities increase after introduction of an explicit DI, they do not find any

[1] As reported by the Bank of International Settlements' Locational Banking Statistics.

[2] Lane & Sarisoy (2000) focus on developing countries in 1990s and analyze gross private capital flows, net private capital flows, international syndicated loans and international bond issues.

[3] Huizinga & Nicodème (2006) focus on developed countries from 1983 to 1999 and analyze the impact of the existence of an explicit DI scheme on external liabilities. Their data differentiate interbank and non-bank liabilities and originate from the BIS's International Banking Statistics. Note however that (1) interbank liabilities are generally not insured and (2) non-bank liabilities include insured deposits but also a certain amount of uninsured funds.

role for specific DI features. Similar to Lane & Sarisoy (2000), their results are at least in part driven by the inclusion of uninsured liabilities. Furthermore, due to the aggregate level of their data at the bank country level, they are only able to investigate whether a DI system makes a given country more attractive to all foreign depositors in general.

By contrast, our paper employs a uniquely suitable data set of *bilateral cross-border retail deposits* provided confidentially by the Bank of International Settlements (BIS). Our data are based on the BIS's Locational Banking Statistics and cover cross-border deposits between 131 depositor countries and 22 bank countries for the period from 1998 to 2011. We are – to the best of our knowledge – the first to use such a detailed dataset and are therefore able to contribute to the understanding of the role of DI schemes for cross-border depositing in numerous ways. First, our study extends the literature by analyzing retail deposits, e.g. deposits of households and non-financial corporations that are actually covered by DI schemes. As such, we can investigate the direct insurance effects and do not need to make any interference about the implications of DI systems on financial systems. Second, we investigate not only the attractiveness of the bank countries' DI, but also the importance of DI differences between the depositor's home country and the bank country. Analyzing the role of bank countries' regulations builds on the existing literature and inquires whether DI provides a "Safe Haven". The analysis of DI differences across countries adds to the literature and is informative about "Regulatory Arbitrage". Third, we investigate not only the effect of an explicit DI but also consider its specific features. As argued by Eisenbeis & Kaufman (2015) the effectiveness of a DI depends crucially on its design and implementation.[4] Despite deposit market internationalization, significant heterogeneity still exists across national DI schemes[5] potentially increasing the relative attractiveness of a deposit market. As our analyses will cover regulatory differences across countries we can provide in-depth insights into which features of a DI can induce regulatory arbitrage.[6] Fourth, we provide an analysis of the potentially changing importance of safe havens and regulatory arbitrage during stable versus crisis times using the Laeven & Valencia (2008, 2010, 2012) financial crisis database. Here we build on Kleimeier, Sander, & Heuchemer (2013) who find that during systemic banking crises, depositors discipline their home banking system by re-locating deposits to foreign safe havens.[7] Fifth and finally, we investigate the impact and efficiency

[4] For a similar argument, albeit from a more sceptical view regarding deposit insurance schemes, see Calomiris & Jaremski (2016).

[5] See Dale, Bruni, & De Boissieu (2000), Eisenbeis & Kaufman (2006, 2008).

[6] We thereby contribute indirectly to the literature on DI design including optimal DI schemes and implications on the banking systems and financial markets. See Garcia (1999), Demirgüç-Kunt & Sobaci (2001), Demirgüç-Kunt & Detragiache (2002), Demirgüç-Kunt, Karacaovali, & Laeven (2005), Hoelscher, Taylor, & Klueh (2006), Laeven & Beck (2006), Demirgüç-Kunt, Kane, & Laeven (2014).

[7] Kleimeier, Sander, & Heuchemer (2013) build on the literature on the disciplining role of (domestic) depositors pioneered by Berger (1991). Later contributions e.g. report evidence for a "flight to quality (safety)

of emergency actions taken by many countries in response to the severity of the 2008/09 crisis, which included explicit and often enhanced government guarantees over and above the regular DI coverage. We find that both, the quest for safe haven and regulatory arbitrage are important drivers of cross-border depositing in stable times. Conversely, in times of financial crisis, it is mainly the safe haven motive that dominates. This safe haven motive is particularly important during the financial crisis of 2008/09. We also provide evidence that the emergency actions taken in bank countries, in particular the introduction of government guarantees, are major drivers of global retail deposit relocations towards safe havens.

The plan of the paper is as follow. In section 2 we develop our gravity model for analyzing the impact of DI on cross-border deposits by formulating five hypotheses and the corresponding specifications of the gravity model. Section 3 details the various extensive databases we are using. Section 4 reports the results. Section 5 concludes.

2. A Gravity Model of Cross-Border Deposits

We apply a gravity model framework to empirically analyze the impact of DI on bilateral cross-border deposits. Based on Tinbergen (1962) and Pöyhönen (1963), the gravity model has been proven successful in explaining international trade and, in its basic form, explains bilateral trade with the trading partners' economic masses and geographical distance (Krugman, 1980; Helpman & Krugman, 1985; Baltagi, Egger, & Pfaffermayr, 2003). Later studies extend this basic model to capture additional bilateral characteristics more precisely, including joint trade agreements, common currency membership, or cultural distance (Baxter & Kouparitsas, 2006). In line with Portes & Rey (2005), who argue that gravity models could at least work as well in explaining asset trades as good trades, gravity modelling has more recently extended to the realm of international finance as well (Lane & Milesi-Ferretti, 2008; Martin & Rey, 2004; Buch, 2005; Portes & Rey, 2005; Aviat & Coeurdacier, 2007; Buch & Lipponer, 2007; Coeurdacier & Martin, 2009; Heuchemer, Kleimeier, & Sander, 2009; Okawa & Van Wincoop, 2012; Kleimeier, Sander, & Heuchemer, 2013; Sander, Kleimeier, & Heuchemer, 2013, 2016). The bilateral character of the dependent variable makes the gravity approach the model of choice to analyze both, the safe haven behavior and, in particular, regulatory arbitrage behavior.

by depositors" during the Asian crisis of 1997/08 (Ding, Domac, & Ferri, 1998). Rochet (2004) reports empirical evidence for direct market discipline in crisis periods when depositors are able to "vote with their feet". Park & Peristiani (1998) and Martinez Peria & Schmukler (2001) find similar effects during the banking crises in USA in the 1980s, and Argentina, Chile, Mexico in the 1980s and 1990s, respectively.

We start with the investigation of safe haven behavior and employ the following gravity model that tests the relationship between DI schemes in the bank countries and cross-border deposits:

$$Dep_{ijt} = \alpha_{ij} + \alpha_i + \alpha_j + \alpha_t + \beta_1 DI_{it} + \beta_2 size_{ijt} + \delta X_{ijt} + \varepsilon_{ijt} \quad (1)$$

where Dep_{ijt} are the exchange rate adjusted stocks of cross-border deposits from depositors in country j to banks in country i in year t. $Size_{ijt}$ refers to the economic masses of bank country i and depositor country j in year t, which equals to the sum of logarithmic GDP of the two countries. X_{ijt} represents other control variables commonly used in gravity models, including proxies for banking market size, de facto and de jure openness (e.g. bilateral trade and a globalization index), currency unions and free trade agreements. Following Baldwin & Taglioni (2006) and in accordance with Bekaert, Harvey, Lundblad, & Siegel (2013) we use a full set of country pair, bank country, depositor country and year fixed effects given by α_{ij} , α_i , α_j and α_t, respectively. Our focus does not lie on the general determinants of international deposits. Thus, instead of adding controls for transactional frictions such as geographical and culture distance, legal origin and common language[8], we employ country pair fixed effects to control for all these time-invariant variables that may affect cross-border deposits. Country pair fixed effects can control bilateral trade resistance which is the size of the barriers to trade between countries i and j. In addition, we follow James & Van Wincoop (2003) and include bank and depositor country fixed effects to control multilateral trade resistance, which refers to the barriers which each country i and j faces in their trade with all their trading partners (including domestic and internal trade). Finally, we employ year fixed effects to control for common time-varying factors. DI_{it} is our variable of interest and captures the different features of the bank country's DI scheme. In its simplest form, it represents a dummy variable equal to 1 when an explicit DI exists in the bank country i in year t but we also explicitly measure various design features of the DI scheme in the bank countries.

We postulate that depositors are attracted to a given bank country when its DI provides depositors with a safe haven. As banks transform deposits into risky loans and other risky assets, depositors are exposed to the bank's credit risk. However, depositors prefer to reduce or even eliminate their exposure to bank risk and thus value the protection provided by DI. However,

[8] Regarding specific determinants of cross-border deposits, Grilli (1989) finds that non-bank deposits are driven by interest taxes and bank secrecy, while interbank deposits are determined by dividend taxes and economic size. Alworth & Andresen (1992) use a gravity model to explain cross-border deposits with reserve ratios. Huizinga & Nicodème (2004) find a weak linkage between bilateral bank liabilities held by non-banks and income taxes. Sander, Kleimeier, & Heuchemer (2016) find that cultural differences act as barriers to cross-border depositing in the Eurozone.

only a well-designed DI scheme can provide depositors with effective risk reduction and avoid moral hazard problems (Diamond & Dybvig, 1983, 1986; Merton & Thakor, 2015). As such, specific features of the DI scheme such as coverage limit or intensity, repayment history, moral hazard mitigation or power of the DI agency should matter to depositors. These considerations lead to our first hypothesis:

H1: Safe Haven Hypothesis

Compared to bank countries without an explicit DI, the existence of an explicit DI makes a bank country more attractive for cross-border depositors. In addition, the attractiveness of a bank country for cross-border depositors increases with the strength of its DI scheme relative to the strength of other bank countries' DI schemes.

As countries also have their own freedom to design their DI schemes, this provides room for international regulatory competition and thus for regulatory arbitrage by depositors. Specifically, the differences in DI schemes between bank and depositor countries may matter in a relative way, with the DI system in the depositor country serving as a benchmark. Thus, besides the absolute quality of a DI system in the bank country, depositors may also care about the relative quality of a DI system in the bank country, taking into account other variables such as physical and cultural proximity or the existence of joint trade agreements or a joint currency. This leads to our second hypothesis.

H2: Regulatory Arbitrage Hypothesis

The existence of an explicit DI makes a bank country attractive for cross-border depositors from countries that lack an explicit DI. In addition, the attractiveness of a bank country for cross-border depositors increases with the strength of bank country's DI scheme relative to the strength of depositor country's DI scheme.

In order to test the Regulatory Arbitrage Hypothesis, we adjust model (1) to allow for the differences in DI schemes across bank and depositor countries, as shown by DI_{ijt} below.

$$Dep_{ijt} = \alpha_{ij} + \alpha_i + \alpha_j + \alpha_t + \beta_1 DI_{ijt} + \beta_2 size_{ijt} + \delta X_{ijt} + \varepsilon_{ijt} \quad (2)$$

But do the effects postulated in the Safe Haven and Regulatory Arbitrage Hypotheses hold when the depositor experiences a banking crisis at home[9], and if so, which effects are more pronounced? For instance, depositors from countries that are undergoing a systemic banking crisis may search for a better DI abroad either in the relative sense of regulatory arbitrage or in the absolute sense of a safe haven. However, it may also be possible that depositors totally lose faith in the banking sector and its DI and as a result the relationships between DI and cross-border depositing diminishes or even disappears. Thus we formulate two hypotheses with respect to financial crisis in depositor countries:

H3: Safe Haven in Crisis Hypothesis

The importance attributed by cross-border depositors to the existence and strength of the bank country's DI increases when depositors experience a banking crisis at home.

H4: Regulatory Arbitrage in Crisis Hypothesis

The importance attributed by cross-border depositors to the existence and strength of the bank country's DI relative to the depositor country's DI increases when depositors experience a banking crisis at home.

To test these hypotheses, we estimate the following two regressions, with model (3) focusing on the bank country features and thus testing the Crisis Hypothesis in the context of our save haven argument and model (4) focusing on the differences across countries and thus testing the Crisis Hypotheses in the context of regulatory arbitrage:

$$Dep_{ijt} = \alpha_{ij} + \alpha_i + \alpha_j + \alpha_t + \beta_1 DI_{it} * stable_{jt} + \beta_2 DI_{it} * crisis_{jt} + \beta_3 size_{ijt} + \delta X_{ijt} + \varepsilon_{ijt} \quad (3)$$

$$Dep_{ijt} = \alpha_{ij} + \alpha_i + \alpha_j + \alpha_t + \beta_1 DI_{ijt} * stable_{jt} + \beta_2 DI_{ijt} * crisis_{jt} + \beta_3 size_{ijt} + \delta X_{ijt} + \varepsilon_{ijt} \quad (4)$$

where $stable_{jt}$ is a dummy variable equal to 1 when there is no systemic banking crisis in depositor country j in year t. Similarly, $crisis_{jt}$ is a dummy variable equal to 1 when there is a systemic banking crisis in depositor country j in year t. An insignificant β_2 implies that DI does not matter for cross-

[9] We would also like to investigate what happens when a bank country experiences a crisis. As described in the next section, our sample period covers 1998 to 2011 and covers 22 bank countries and 131 depositor countries. However, we observe systemic banking crises only in depositor countries with a single exception: The 2008/09 crisis also affected bank countries. Due to its unique features, i.e. the fact the countries adjusted their DI schemes in response to the crisis, we will study the 2008/09 crisis separately in the context of our Emergency Actions Hypothesis.

border depositors during a crisis. Similarly, if β_2 is significantly smaller than $\beta_1$or has the opposite sign, a banking crisis destroys the faith in DI systems and thus diminishes or even eliminates the relationships. However, a β_2 that is significantly larger in absolute values and has the same sign as β_1 suggests that depositors trust foreign DI schemes during crises, which supports either the Safe Haven in Crisis Hypothesis or Regulatory Arbitrage in Crisis Hypothesis or both.

The two crisis hypotheses as outlined above are applicable to the majority of historic banking crises as these are country specific. The 2008/09 banking crisis which started in the US is however different as it spilled over into numerous countries and became an almost global crisis. In response to the severity of the crisis, many countries revised their DI schemes. According to International Association of Deposit Insurers (IADI), at least 49 countries enhanced depositor protection, including 20 countries with maximum coverage increases (e.g. full guarantees), 22 countries with permanent coverage increases and seven countries with temporary coverage increases. These actions were initiated in Europe but quickly spread to nearly every continent, e.g. most revisions took effect between September 2008 and March 2009. These emergency actions to enhance DI systems provide us with a great opportunity to more specifically examine how the changing design features of DI impact cross-border deposits. Before the 2008/09 crisis, the main goal of DI agencies was protecting small depositors, as they did not have the ability to understand and monitor the risks taken by financial institutions. However, after the crisis, maintaining and strengthening the stability of the financial system has been set as the primary goal delegating the protection of small depositors to secondary importance (Bernet & Walter, 2009). Thus our fifth and final hypothesis postulates the following:

H5: Emergency Actions Hypothesis

The emergency actions taken by the bank country regarding its explicit DI ensure that the bank country remains an attractive safe haven for cross-border depositors.

To empirically test this hypothesis, we will employ a difference in difference analysis within our gravity model setting:

$$Dep_{ijt} = \alpha_{ij} + \alpha_i + \alpha_j + \alpha_t + \beta_1(emergency\ action * 2008/09\ crisis\ period)_{it} + \beta_2 size_{ijt} + \delta X_{ijt} + \varepsilon_{ijt} \quad (5)$$

where *emergency action* is a dummy variable equal to 1 if a bank country adopted various emergency actions to enhance its DI, and 0 otherwise. These emergency actions include an *explicit*

DI Introduction or the provision of an *official government guarantee*, *limited government guarantee* or *unlimited government guarantee*. *2008/09 crisis period* is a dummy variable equal to 1 for the period from 2008 to 2011 when emergency actions are taken. Our model already includes bank country fixed effects and year fixed effects, thus the separate effects of these two variables are already included. β_1 represents the treatment effect, which measures the impact of these emergency actions on cross-border deposits.

3. Data

Our paper is -to the best of our knowledge- unique in that it utilizes all major recent databases on global DI in a systematic manner and investigate their effects on cross-border retail depositing using a unique, custom made, confidential, and bilateral country-level data set provided by BIS. Using bilateral data allows us to examine cross-border depositing for all pairs of bank and depositor countries.[10] Furthermore, we only consider non-bank deposits, which are mainly held by individuals and businesses as DI schemes tend to only cover non-bank deposits but exclude interbank deposits from coverage. The BIS Locational Banking Statistics are perfectly suited to analyze such cross-border banking activities as they are compiled using principles that are consistent with balance of payments and thus the principle of residence. However, the publicly available data can only be disaggregated either by bank country or by depositor country, instead of being disaggregated bilaterally by both at the same time. Therefore, our paper uses a customized and confidential data set made available by BIS, which exactly provides this bilateral disaggregation. Although the BIS Consolidated Banking Statistics publicly provide bilateral data, these data only report foreign claims and not deposits. Furthermore, the consolidated data are based on the principle of nationality instead of residence. In conclusion, the BIS Locational Banking Statistics are preferable.

Our sample covers 22 bank countries[11] and 131 depositor countries from 1998 to 2011 but not all bilateral cross-border deposits X_{ijt} are available for all years. As such our panel is unbalanced. When testing the Safe Haven, Regulatory Arbitrage and Crisis Hypotheses, we only consider a sample period from 1998 to 2007. When testing the Emergency Actions Hypothesis, we rely on a sample

[10] A cross-border deposit occurs when a bank in one country receives a deposit from a depositor who resides in another country. Specifically, our definition is based on the residence and not the nationality of the bank and depositor. For instance, a cross-border deposit is made when a depositor who resides in country A deposits money at an institution (i.e. subsidiary or branch) of a bank that is located in country B, independent of where the head-quarter of the bank is located. In comparison, domestic deposits are made when residents of country B deposit money with a bank that is located in country B. Thus, we are exactly examining those cases where a depositor crosses a national border.

[11] Australia, Austria, Belgium, Brazil, Chile, Denmark, Finland, France, Germany, Greece, India, Ireland, Italy, Luxembourg, Macao SAR, Netherlands, Panama, Spain, Sweden, Switzerland, United Kingdom, United States.

period of 1998 to 2011.[12] The BIS reports unadjusted stocks and exchange rate adjusted flows of cross-border deposits. In order to eliminate any potential exchange rate valuation effects, we calculate annual exchange rate adjusted stocks by taking the initial nominal stocks and successively adding the exchange rate adjusted flows. Figure 1 provides a first impression of the evolvement of cross-border deposits over time. Both unadjusted and adjusted stocks show high growth from US$ 1.3 trillion in 1998 to around US$ 5 trillion in 2008 before dropping by as much as 25% as a consequence of the 2008/09 banking crisis. Importantly, about 16% of the deposit stock volume in 2008 can be attributed to exchange rate valuation effects. Therefore, it is necessary and important to adjust for exchange rate valuation effects. Furthermore, our sample is quite heterogeneous as it covers a wide range of countries with different levels of economic and financial development. Figure 2 plots the total annual volume of cross-border deposits that a given bank country receives from all depositor countries, averaged across years. Figure 2 reveals how substantial the differences across countries are. In the average year, Chile receives the least cross-border deposits, amounting to only US$ 307 million from all depositor countries combined. In contrast, banks in the United Kingdom receive the most cross-border deposits amounting to US$ 607 billion.

[Insert Figures 1 and 2 about here]

The main DI data source that we rely on to test our safe haven and regulatory arbitrage hypotheses is 'Chapter 8: Depositor (Savings) Protection Schemes' in the World Bank's Bank Regulation and Supervision Database due to its indicator consistency and high survey frequency (see also Barth, Caprio, & Levine, 2001; Cihak, Demirgüç-Kunt, Martinez Peria, & Mohseni-Cheraghlou, 2012). Regarding indicator consistency, we are able to not only measure D_{jt} and D_{ijt} as the existence of an explicit DI but are also able to obtain proxies for specific DI characteristics. Regarding the survey frequency, we fill the gap between two consecutive surveys. Specifically, 1998-2001 is filled with data in the survey that was started in 1998. Similarly, 2002-2005 and 2006-2007 are filled with data from the surveys that were conducted in 2002 and 2006 respectively. We only expand the survey data forward so that cross-border deposits are regressed on pre-determined designs of DI systems.

[12] Our full data set for cross-border deposit covers 1995-2011, however, the DI data set only start from 1998, and during the 2008/09 financial crisis, many emergency actions have been taken to enhance the DI schemes, both permanently and temporarily. Thus we end our first sample in 2007, and analyze the impact of these emergency actions in 2008 in the following section. Another reason to end our first sample period in 2007 is that before the 2008/09 financial crises, systemic banking crises only occurred in depositor countries, not in bank countries, in our BIS sample. Thus leaving out the post-2007 period enables us to separate the "old" crises from the "new", which is more complicated and also occurred in the bank countries in our sample.

Our proxies for specific DI characteristics capture the insurance benefits for the depositor as well as the moral hazard problem introduced by a poorly designed DI scheme. As argued by Barth, Caprio, & Levine (2004), the existence of a DI can induce banks to increase their risk taking and a moral hazard problem arises when risk levels become excessive. However, a DI scheme can be designed to limit moral hazard for example by introducing bank funding or risk-based insurance fees. We consider the existence of an *explicit DI*, the *DI power, DI moral hazard mitigation, DI repayment history, DI coverage intensity and DI coverage limit* as core features of a DI scheme and will thus focus on them in our empirical analyses.[13]

Among these six DI proxies, the existence of an *explicit DI* is our most fundamental measure. It is defined as a dummy variable equal to one if a bank country has an explicit DI in place and zero if no or only an implicit DI exists in the bank country.

As our second proxy, we include Barth, Caprio, & Levine (2004) *DI power* measure. This index considers whether the DI agency has the power to make the decision to intervene in a bank, to revoke its DI coverage, has the power to take legal action against bank directors or officials, or has ever taken any legal action against bank directors or officers. The index ranges from zero to four, depending on whether the DI agency has none or all four of these powers. A DI agency without these powers might be ineffective, i.e. in cases of political interference or weak relationships between DI agency and the bank supervisors, who instead of the DI agency have the power to resolve bank failures (Garcia, 1999).

Third, we combine some of the individual DI features to generate a *DI moral hazard mitigation* index. Here we follow Demirgüç-Kunt & Detragiache (2002) and consider whether a DI scheme is funded by the banks themselves rather than the government and whether the insurance fees charged to banks vary based on risk assessment. In each case, a value of one is assigned such that the *DI moral hazard mitigation* index can range from 0 to 2. Demirgüç-Kunt & Detragiache (2002) argue that moral hazard is stronger under government funding but weaker under bank funding as banks do not bear the cost of their moral hazard. Thus, higher values for the *DI moral hazard mitigation* index imply greater ability to mitigate moral hazard.

Our remaining DI proxies measure to what extent depositors are covered by the DI scheme. On the one hand, Garcia (1999) argues that limited or restricted DI coverage reduces moral hazard as large, sophisticated depositors remain uninsured and thus have an incentive to monitor and discipline banks by demanding higher deposit rates or refusing to deposit funds altogether. On the other hand, depositors might be more attracted to a banking market where DI coverage is more extensive as the responsibility for monitoring and disciplining is shifted to the DI agency. Thus as our

[13] Detailed variable definitions and sources are provided in Tables A1 and A2 in the Appendix.

fourth proxy, *DI repayment history* measures the compensation that depositors received in the past. Looking at prior bank failures, we consider whether insured depositors were fully compensated and whether uninsured depositors were compensated. In each case, a value of one is assigned such that the *DI replacement history* index can range from 0 to 2. Fifth, we consider *DI coverage intensity* based on whether there is a coverage limit, whether formal coinsurance explicitly insures depositors for less than 100% of their deposits and whether foreign currency deposits are excluded. In each case, a value of one is assigned if coverage is not limited. As such, that the *DI coverage intensity* index can range from 0 to 3. Sixth, for those DI schemes that have a coverage limit, we measure *DI coverage limit* as the natural logarithm of US dollar amount at which coverage is limited.

DI schemes change over time even before 2008 and vary across countries as the summary statistics in Table A3 in the Appendix indicate. In general, countries might provide implicit DI or increase existing insurance in times of banking crisis or failures. In particular, during the 2008/09 financial crisis, many countries responded by quickly taking emergency actions in 2008. All emergency actions enhance DI coverage. The data are taken from World Bank's Deposit Insurance Database (see Demirgüç-Kunt, Kane, & Laeven, 2014) and in line with the IADI's categorization, we differentiate between the introduction of an explicit DI and the provisions of a government guarantee, regardless of the guaranteed amount. Demirgüç-Kunt, Kane, & Laeven (2014) cover 20 of our 22 bank countries and we thus need to drop Panama and Macao from our sample of bank countries. Among them, 15 countries have undergone the 2008/09 financial crisis. These countries plus Australia introduced explicit DI on October 12th, 2008. Six countries (namely Australia, Austria, Denmark, Germany, Ireland and the United States) announced official guarantees on deposits, of which Germany and United States set a limited guarantee, while the other four countries provide an unlimited guarantee.

To test the effects of crises on cross-border deposits, we employ the Systemic Banking Crises Database by Laeven & Valencia (2008) which identifies three types of crises, namely banking, currency and sovereign debt crises. A banking crisis is defined as a situation where "a country's corporate and financial sectors experience a large number of defaults and financial institutions and corporations face great difficulties repaying contracts on time. As a result, non-performing loans increase sharply and all or most of the aggregate banking system capital is exhausted". We consider all systemic banking crises during our sample period, that is, 1998-2007. Table A4 in the Appendix shows the frequency of banking crises over time and indicates that banking crises are more frequent in 1998-1999 which at least partly reflects the Asian crisis. During the following years, the number of systemic banking crises fluctuates on a relatively low level. As the Systemic Banking Crises Database

also includes information on the starting and ending year of the systemic banking crises that enables us to cover not only the start of the crises, but also the whole period of it.

Finally, we include a set of control variables that are specific for the bank and depositor country pair and vary over time. $Size_{ijt}$ is based on the total GDP of both countries obtained from the World Bank's World Development Indicators Database. From the IMF's International Financial Statistics we obtain our proxy for $credit_{ijt}$, e.g. the size of the banking market measured as the two countries' aggregate domestic credit to the private sector as percent of GDP. We employ three measures of openness. First, the KOF_{ijt} Index of Globalization serves as a proxy for de jure openness. Second, we measure de facto openness via $trade_{ijt}$ which reflects the imports and exports between the bank and depositor country and is obtained from the STAN Database. Third, we include a dummy variable set to one if both countries belong to the same free trade area (FTA_{ijt}). We also control for exchange rate risk by coding a dummy variable equal to one if the bank and depositor country belong to the same *currency union*$_{ijt}$. FTA and currency union data are obtained and updated from Sander, Kleimeier, & Heuchemer (2013) with the original definitions following Rose (2005) and Ilzetzki, Reinhart, & Rogoff (2008), respectively. Furthermore, we recognize that differences in rates of return on deposits as an important determinant of cross-border deposits. Our *deposit rate*$_{ijt}$ proxy controls for the difference between foreign and domestic deposit interest rates, with higher values indicating higher returns when depositing abroad. Annual deposit rates are obtained from the IMF's International Financial Statistics. We also include $internet_{ijt}$ access. Sander, Kleimeier, & Heuchemer (2016) argue that in countries in which a high percentage of the population has internet access, banks have a strong incentive to develop internet banking portals and depositors have low bank transaction costs and can easily and inexpensively deposit across borders. To capture both the bank and depositor side, we obtain data regarding the percentage of individuals with internet access from the UN's World Telecommunication/ITC Indicators dataset and measure $internet_{ijt}$ as the product of the bank and depositor country. Finally, $governance_{ijt}$ captures differences in institutional quality between bank and depositor country with data based on the World Bank's Worldwide Governance Indicators and with higher values indicating better institutional quality abroad.

4. Results

4.1. Safe Haven and Regulatory Arbitrage in Cross-Border Depositing

In this section we examine the impact of various DI designs on cross-border deposits. We assume that not only the design of the DI system in the bank country matters, but that also the differences in DI design between bank and depositor country matters. In other words, we investigate both the Safe Haven and Regulatory Arbitrage hypotheses.

We start with the Safe Haven Hypothesis by investigating the impact of the existence of an explicit DI in the bank country and its characteristics on cross-border deposits based on our gravity model of equation (1). Results are shown in Table 1. Regressions (1) to (6) provide a parsimonious specification in which we only control for *size* in addition to our various fixed effects. The specification of regressions (7) to (12) is more profligate with a more complete set of control variables. As during our sample period, *explicit DI* does not change over time for any given bank country, we can only include depositor country and year fixed effects in regressions (1) and (7). To compensate for the lack of country-pair fixed effects, we instead add gravity country-pair controls, e.g. proxies for geographical distance, common border, common language, colony and common legal system. In regression (1), the impact of an *explicit DI* is highly significant and – as expected – positive, indicating that bank countries with an explicit DI attract more cross-border deposits than bank countries without an explicit DI. Results regarding the DI agency's power and actions taken to mitigate moral hazard in the DI systems affect cross-border deposits are reported in regressions (2) and (3) and indicate that more deposits flow to countries whose DI agency have more power or take more actions to mitigate moral hazard. Regarding the coverage provided by the DI scheme, regressions (4) to (6) indicate that countries with a higher coverage limit are more attractive to cross-border depositors and there is marginal evidence that depositors care about the DI's coverage intensity. In contrast, repayment history does not matter. Our results are not only statistically significant but also economically relevant. For example, the introduction of an explicit DI is associated with an 80% increase in cross-border deposits. As the shift from an implicit or non-existent to an explicit DI constitutes a fundamental change in the country's banking system, such a substantial increase in cross-border deposits is not surprising. Furthermore, a one-unit increase in the DI power, moral hazard mitigation and coverage intensity increases cross-border deposits by 4.1%, 6.2% and 3%, respectively. Finally, a 1% increase in the coverage limit increases cross-border deposits by 0.55%. This is economically meaningful considering that a one standard deviation change in the coverage limit can be associated with a 6.2% change in cross-border deposits. In regressions (7) to (12) we add more control variables but our DI results are robust with very similar coefficients and significance levels. In regression (10), the DI repayment history proxy is now marginally significant with an economic effect of 2% on cross-border deposits for a one-unit increase in the repayment history proxy.[14] Overall, our results are in line with our Safe Haven Hypothesis: The existence of

[14] The control variables generally show the expected coefficients indicating that cross-border deposits are higher when bank and depositor country are larger, are linked by trade flows, share a common currency, have more internet access or are more similar in terms of governance. Cross-border deposits are also higher when the bank country offers higher deposit rates than the depositor country. In regression (7) we find unexpected negative coefficients for globalization, internet and governance which might be driven by the fact that our gravity control variables do not fully capture all country-pair fixed effects.

explicit DI systems and the strength of the features of the DI schemes in terms of power, moral hazard mitigation and coverage attract more cross-border deposits to that country.[15, 16]

[Insert Table 1 about here]

So far we only examine how the DI systems in the bank countries would impact cross-border deposits. However, the differences in DI schemes between any pair of a bank country and a depositor country may also matter in a relative way. In this sense, the DI system in the depositor country may serve as a benchmark. Next to the absolute quality of the DI system in the bank country, depositors also care how much better the DI in the bank country is relative to their home country. To test for the Regulatory Arbitrage Hypothesis, we take differences of all the DI measures between all pairs of bank countries and depositor countries and regress cross-border deposits on these differences in DI schemes as indicated by model (2). Results are shown in Table 2 and we can conclude that depositors hold more funds in bank countries with better DI schemes than they can find in their home country. Specifically, depositors from countries without explicit DI tend to deposit their money in bank countries with explicit DI while depositors from countries with explicit DI are less likely to deposit their money in bank countries without explicit DI. Equally relevant in terms of statistical significance are the results that bank countries whose DI authorities have relatively stronger power than the DI authorities in the depositor countries and bank countries with DI schemes designed to mitigate moral hazard more effectively than DI schemes in the depositor countries attract more cross-border deposits. In contrast, the coefficients of the coverage related DI features are insignificant. While results are overall in accordance with the Regulatory Arbitrage Hypothesis, it also becomes clear that regulatory arbitrage only occurs when the bank country's DI surpasses a minimum level of trustworthiness as indicated by the role of DI power and DI moral hazard mitigation and regulatory arbitrage with respect to coverage is not important for depositors.

[Insert Table 2 about here]

[15] We conduct robustness checks to allow for the possibility that our match of annual cross-border deposit data to DI data from surveys in 1998, 2002 and 2006 is inaccurate. We therefore restrict our sample period to the three years in which the DI survey took place. Results are shown in Table A4 in the Appendix and are robust. Corresponding robustness checks for Tables 2, 3 and 4 can be found in Tables A6, A7 and A8 in the Appendix and also here results are robust.

[16] Table A9 in the Appendix shows that the DI proxies are correlated, i.e. when differentiating between stable and crisis periods. The joint inclusion of all DI proxies causes multicollinearity problems, i.e. for the DI moral hazard proxy. We thus insert the DI proxies one-by-one into our empirical model.

4.2. Cross-Border Banking and Home Country Banking Crisis

In this section we investigate whether the relationships between DI schemes and cross-border deposits change when bank countries experience a systemic banking crisis. Depositor country banking crises are modeled as indicated in equations (3) and (4) and reported in Table 3 and Table 4. In Table 3 we examine Safe Haven in Crisis Hypothesis. As shown in regressions (1) and (7), the existence of an *explicit DI* is important for foreign depositors both in stable times and in times of crisis. This indicates that when the depositor's home country is undergoing a systemic banking crisis, depositors still trust the foreign DI systems. Furthermore, the power of the DI agency and the actions taken to mitigate DI-induced moral are found to be more important during times of crisis. Economically regressions (8) and (9) indicate that one unit stronger *DI power* and *DI moral hazard mitigation* is associated with 8.3% and 10.5% more cross-border deposits during crisis times compared to only 3.0% and 6.2% during stable times, respectively. When it comes to coverage related DI design features in bank countries during stable and crisis times, Table 3 shows several remarkable findings. Firstly, *DI coverage limit* is equally important in stable as in crisis times. Secondly, during a systemic banking crisis, depositors pay attention to historical record of the DI system as the switch from an insignificant coefficient to a significantly positive coefficient for *DI repayment history* between stable and crisis times shows. During crisis times, a one-unit increase in the *DI repayment history* index is associated with 8.3% more cross-border deposits. Thirdly, a similar result in coefficient size and significance can be observed for *DI coverage intensity*. The marginally significant coefficients for these two DI features reported in Table 1 are thus driven by crisis periods only. During a crisis, depositors thus do not only care about the absolute amount of deposits insured by the DI scheme but also about the historical record of the DI agency during prior bank failures as well as about secondary coverage aspects such as coinsurance or the coverage of foreign currency deposits. Unreported F-tests indicate for all DI proxies except *explicit DI* that the difference between the stable and crisis period coefficient is statistically significant. In sum, these results support our Safe Haven in Crisis Hypothesis and indicate that depositors value safe havens more when their home countries are undergoing a systemic banking crisis.

[Insert Table 3 about here]

Using model (4) to test our Regulatory Arbitrage in Crisis Hypothesis, Table 4 reports the results during stable and crisis times for the differences in DI between bank and depositor countries. Table 4 reveals that depositors are willing to chase "better" *explicit DI* in stable and crisis times. In contrast, *DI power* and *DI moral hazard mitigation* only matter during stable times. This result stands

in contrast to the results for Safe Haven in Crisis Hypothesis in Table 3 where effects become stronger rather than weaker during a crisis. One possible explanation could be that depositors consider regulatory arbitrage during stable times, but when they are hit by a crisis, they care less about the arbitrage opportunities and only care whether their deposits are safe, that is, whether their deposits are deposited in countries with an explicit DI. Overall, Table 4 therefore suggests that regulatory arbitrage behavior disappears in times of crisis and depositors only move across borders when they are not protected by an explicit DI scheme at home.

The evidence provided here indicates that safe havens are becoming more important during crisis times while regulatory arbitrage only remains relevant for depositors from countries without an explicit DI. On might say, that depositors search for the best protection in time of crisis and thus relocate deposits to safe havens. Only during stable times are depositors willing to consider regulatory arbitrage.

[Insert Table 4 about here]

4.3. The Role of Emergency Actions during Global Financial Crisis

Our analysis so far suggests that during a banking crisis in the home country, foreign safe havens become important to depositors. However, during the 2008/09 financial crisis safe havens were in short supply as bank countries which during our early sample period from 1998 to 2007 had not experienced a banking crisis are now subject to a crisis as well. As a consequence, many bank countries took emergency actions by implementing explicit DI schemes or enhancing government guarantees. To examine the impact of such emergency actions on cross-border deposits, we employ a difference in difference analysis as outlined in model (5) and thereby test our Emergency Actions Hypothesis. Results are shown in Table 5. It is important to note that we do not only rely on the full sample of country-pairs involving all bank countries, but also conduct the difference in difference analysis with a subsample containing only those country-pairs for which the bank countries have experienced the 2008/09 crisis. By doing this, we can further narrow down our control groups, thus making our results more precise, i.e. countries that have undergone the 2008/09 crisis have similar characteristics and this similarity is higher within this subgroup than compared to countries that were not exposed to the 2008/09 crisis. We start with regression (1) where we examine the impact of an *explicit DI introduction* and show that this emergency measure significantly increases cross-border deposits. Similarly regressions (2) to (4) show that cross-border deposits increase when government guarantees, whether limited or unlimited, are introduced. Regressions (1) to (4) are based on our full sample of country-pairs based on all 20 bank countries. Regressions (5) to (7) are

based on the subsample of country-pairs for which the bank countries have experienced the 2008/09 crisis but we find almost the identical results as in regressions (2) to (4), indicating that our control groups are unbiased. In addition, besides the full time period of 1998-2011, we also check the treatment effect with a narrower time window from 2006 to 2009 which captures the 4 years surrounding the introduction of emergency actions in 2008. Results are shown in regressions (8) to (14) and are robust albeit with smaller coefficients. This shorter period mitigates the time trend concern in the sense that the early years of the sample period (1998-2005) could be – for reasons unrelated to the crisis – substantially different than the more recent years and confirms our previous results. In sum, the emergency actions appear to be very successful in terms of providing the safe havens that depositors were looking for during a global financial crisis.

[Insert Table 5 about here]

5. Conclusions

Our results indicate that the existence of an explicit DI, as well as other DI design features, affect cross-border depositing and thus the geography of global banking. The existence of an explicit DI is attractive to foreign depositors in the sense that it provides a higher level of deposit safety. But the design of the DI plays an important role, too. Eisenbeis & Kaufman (2015) argue that an effective DI system consists of a credible guarantee, effective monitoring by supervisors, and an efficient resolution mechanism. Our results show that the *DI power, moral hazard mitigation* which encompasses credibility and effective monitoring as well as coverage related DI features matter for cross-border depositing. Our findings regarding these specific DI design features further underline the importance of credibility as depositors identify safe havens as those banking markets with DI schemes that provide high coverage. We further demonstrate that the relationships between DI systems and cross-border deposits vary in stable times and in times of systemic banking crises in depositor countries. In crises times depositors have more incentives to chase a safe haven rather than to engage in regulatory arbitrage. When it comes to a global finance crisis it is the emergency actions of bank country governments, which supply and maintain these safe havens, that matter and can lead substantial relocations of cross-border deposits. As such, these actions do not only rescue the banks and domestic depositors of the countries taking these (credible) emergency actions. They also have measurable and sizeable effects on other countries in a financially interdependent world, which may call for coordinated emergency actions that take possible spillovers across countries into account. However, even in tranquil times, our results show that the design of an effective DI must take the DI's impact on cross-border activities of depositors into account. Our findings add therefore

also to the debate on the design of macro-prudential instruments in globalized financial markets. This discussion, currently focused on bank lending, questions their effectiveness when banks and borrowers are able to circumvent these measures via regulatory arbitrage and calls for coordination among national regulators (Houston, Lin & Ma, 2012; Ongena, Popov & Udell, 2013; Reinhardt & Sowerbutts, 2015). Likewise, our findings, documenting a novel pattern of save haven and regulatory arbitrage driven behavior by depositors, also stress the need for a coordinated regulatory strategy with respect to deposit insurance schemes.

Appendix

[Insert Tables A1 to A9 here]

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Table 1. Testing the Safe Haven Hypothesis

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Explicit DI	0.60***						0.58***					
	(11.71)						(11.50)					
DI power		0.04***						0.04***				
		(4.38)						(4.21)				
DI moral hazard mitigation			0.06***						0.06***			
			(3.02)						(2.90)			
DI repayment history				0.01						0.02*		
				(0.92)						(1.78)		
DI coverage intensity					0.03*						0.03*	
					(1.75)						(1.67)	
DI coverage limit						0.55***						0.55***
						(12.85)						(12.64)
Size	0.38***	0.10***	0.10***	0.10***	0.10***	0.12***	0.24***	0.10***	0.10***	0.10***	0.10***	0.12***
	(40.46)	(3.79)	(3.72)	(3.67)	(3.75)	(4.61)	(15.39)	(3.44)	(3.48)	(3.42)	(3.51)	(4.42)
Credit							1.27***	-0.01	-0.01	-0.01	-0.00	-0.01
							(29.60)	(-0.29)	(-0.32)	(-0.27)	(-0.11)	(-0.33)
Trade							0.17***	0.02**	0.02**	0.02**	0.02**	0.05***
							(13.12)	(2.12)	(2.22)	(2.08)	(2.05)	(4.96)
Globalisation							-1.63***	-0.09	-0.08	-0.13	-0.12	-0.07
							(-13.26)	(-0.74)	(-0.64)	(-1.04)	(-0.96)	(-0.54)
FTA							-0.01	0.02	0.02	0.02	0.02	0.03
							(-0.14)	(0.67)	(0.66)	(0.66)	(0.67)	(1.00)
Currency union							-0.02	0.17***	0.16***	0.17***	0.17***	0.15***
							(-0.21)	(3.14)	(2.94)	(3.04)	(3.00)	(2.82)
Deposit rate							0.00	0.00**	0.00***	0.00***	0.00***	0.00*
							(0.69)	(2.47)	(2.61)	(2.67)	(2.68)	(1.65)
Internet							-1.19***	1.01***	1.03***	1.02***	1.01***	1.04***
							(-5.72)	(10.00)	(10.25)	(10.15)	(10.04)	(10.15)
Governance							0.56***	-0.09**	-0.06	-0.07*	-0.07*	0.07*
							(14.65)	(-2.32)	(-1.53)	(-1.86)	(-1.79)	(1.78)
Gravity country-pair controls	Yes	No	No	No	No	No	Yes	No	No	No	No	No
Country-pair fixed effect	No	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Bank country fixed effect	No	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Depositor country fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.553	0.945	0.945	0.945	0.945	0.951	0.583	0.946	0.946	0.946	0.946	0.952
Observations	20,820	18,870	18,870	18,870	18,870	16,460	20,820	18,870	18,870	18,870	18,870	16,460

Note: This table presents the estimates from ordinary least square regressions of cross-border deposits from depositor country j to bank country i in year t. All variable definitions can be found in Table A1 in the Appendix. The coefficients are reported in the top row, t-values are reported below in brackets. *, **, *** represent statistical significance at the 10%, 5% and 1% level, respectively.

Table 2. Testing the Regulatory Arbitrage Hypothesis

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Explicit DI	0.44***						0.38***					
	(10.09)						(8.84)					
DI power		0.03***						0.03***				
		(3.20)						(3.37)				
DI moral hazard mitigation			0.08***						0.05***			
			(4.22)						(2.76)			
DI repayment history				-0.01						-0.01		
				(-0.81)						(-1.01)		
DI coverage intensity					0.00						0.00	
					(0.07)						(0.26)	
DI coverage limit						0.01						0.01
						(0.81)						(0.98)
Size	0.40***	0.20***	0.22***	0.21***	0.21***	0.25***	0.26***	0.18***	0.21***	0.20***	0.20***	0.24***
	(42.71)	(4.92)	(5.54)	(5.12)	(5.15)	(5.26)	(16.65)	(4.05)	(4.66)	(4.40)	(4.39)	(4.66)
Credit							1.26***	0.02	0.03	0.03	0.03	0.03
							(29.21)	(0.80)	(0.91)	(1.06)	(1.08)	(0.85)
Trade							0.17***	0.02*	0.02*	0.02	0.02	0.03*
							(12.93)	(1.73)	(1.65)	(1.62)	(1.59)	(1.71)
Globalisation							-1.53***	-0.64***	-0.63***	-0.68***	-0.67***	-0.85***
							(-12.52)	(-3.29)	(-3.19)	(-3.46)	(-3.42)	(-3.67)
FTA							-0.00	0.04	0.05	0.04	0.04	0.03
							(-0.03)	(1.15)	(1.21)	(1.10)	(1.13)	(0.73)
Currency union							-0.01	0.17***	0.16***	0.17***	0.17***	0.12*
							(-0.16)	(2.83)	(2.73)	(2.82)	(2.82)	(1.92)
Deposit rate							0.00	0.00	0.00*	0.00*	0.00*	0.00
							(0.36)	(1.63)	(1.72)	(1.68)	(1.74)	(1.49)
Internet							-1.20***	0.68***	0.66***	0.67***	0.67***	0.94***
							(-5.72)	(5.03)	(4.84)	(4.94)	(4.93)	(5.79)
Governance							0.55***	-0.20***	-0.15**	-0.16***	-0.17***	-0.08
							(14.43)	(-3.25)	(-2.43)	(-2.73)	(-2.80)	(-1.23)
Gravity country-pair controls	Yes	No	No	No	No	No	Yes	No	No	No	No	No
Country-pair fixed effect	No	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Bank country fixed effect	No	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Depositor country fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.553	0.946	0.946	0.946	0.946	0.949	0.582	0.946	0.946	0.946	0.946	0.950
Observations	20,820	10,763	10,763	10,763	10,763	7,694	20,820	10,763	10,763	10,763	10,763	7,694

Note: This table presents the estimates from ordinary least square regressions of cross-border deposits from depositor country j to bank country i in year t. All variable definitions can be found in Table A1 in the Appendix. The coefficients are reported in the top row, t-values are reported below in brackets. *, **, *** represent statistical significance at the 10%, 5% and 1% level, respectively.

Table 3. Testing the Safe Haven in Crisis Hypothesis

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Explicit DI * Stable	0.59***						0.59***					
	(11.50)						(11.59)					
Explicit DI * Crisis	0.73***						0.48***					
	(8.41)						(5.68)					
DI power * Stable		0.04***						0.03***				
		(4.13)						(3.96)				
DI power * Crisis		0.07***						0.08***				
		(3.69)						(3.76)				
DI moral hazard mitigation * Stable			0.06***						0.06***			
			(2.96)						(2.82)			
DI moral hazard mitigation * Crisis			0.09***						0.10***			
			(3.35)						(3.49)			
DI repayment history * Stable				0.01						0.02		
				(0.72)						(1.58)		
DI repayment history * Crisis				0.06**						0.08***		
				(2.44)						(3.07)		
DI coverage intensity * Stable					0.03						0.03	
					(1.61)						(1.49)	
DI coverage intensity * Crisis					0.07***						0.08***	
					(3.21)						(3.36)	
DI coverage limit * Stable						0.54***						0.55***
						(12.83)						(12.61)
DI coverage limit * Crisis						0.55***						0.55***
						(12.99)						(12.78)
Size	0.39***	0.10***	0.10***	0.10***	0.10***	0.13***	0.24***	0.10***	0.10***	0.10***	0.11***	0.13***
	(40.48)	(3.94)	(3.80)	(3.76)	(3.96)	(4.81)	(15.37)	(3.59)	(3.59)	(3.52)	(3.73)	(4.61)
Credit							1.28***	-0.01	-0.01	-0.02	-0.01	-0.02
							(29.62)	(-0.49)	(-0.60)	(-0.63)	(-0.55)	(-0.74)
Trade							0.17***	0.02**	0.02**	0.02**	0.02**	0.05***
							(13.15)	(2.09)	(2.19)	(2.07)	(2.04)	(4.93)
Globalisation							-1.64***	-0.10	-0.09	-0.14	-0.13	-0.08
							(-13.31)	(-0.78)	(-0.68)	(-1.07)	(-1.01)	(-0.61)
FTA							-0.01	0.02	0.02	0.02	0.02	0.03
							(-0.13)	(0.65)	(0.65)	(0.65)	(0.65)	(0.97)
Currency union							-0.01	0.17***	0.16***	0.16***	0.16***	0.15***
							(-0.19)	(3.09)	(2.87)	(2.94)	(2.89)	(2.70)
Deposit rate							0.00	0.00***	0.00***	0.00***	0.00***	0.00*
							(0.56)	(2.59)	(2.74)	(2.81)	(2.87)	(1.85)
Internet							-1.20***	1.01***	1.04***	1.03***	1.03***	1.05***
							(-5.77)	(10.05)	(10.35)	(10.26)	(10.21)	(10.29)
Governance							0.56***	-0.09**	-0.06	-0.07*	-0.07*	0.06*
							(14.67)	(-2.43)	(-1.62)	(-1.96)	(-1.95)	(1.65)
Gravity country-pair controls	Yes	No	No	No	No	No	Yes	No	No	No	No	No
Country-pair fixed effect	No	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Bank country fixed effect	No	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Depositor country fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.553	0.945	0.945	0.945	0.945	0.951	0.583	0.946	0.946	0.946	0.946	0.952
Observations	20,820	18,870	18,870	18,870	18,870	16,460	20,820	18,870	18,870	18,870	18,870	16,460

Note: This table presents the estimates from ordinary least square regressions of cross-border deposits from depositor country j to bank country i in year t. All variable definitions can be found in Table A1 in the Appendix. The coefficients are reported in the top row, t-values are reported below in brackets. *, **, *** represent statistical significance at the 10%, 5% and 1% level, respectively.

Table 4. Testing the Regulatory Arbitrage in Crisis Hypothesis

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Explicit DI * Stable	0.43***						0.37***					
	(9.62)						(8.49)					
Explicit DI * Crisis	0.52***						0.43***					
	(4.90)						(4.11)					
DI power * Stable		0.03***						0.03***				
		(3.32)						(3.46)				
DI power * Crisis		0.01						0.01				
		(0.37)						(0.59)				
DI moral hazard mitigation * Stable			0.08***						0.05***			
			(4.21)						(2.74)			
DI moral hazard mitigation * Crisis			0.08**						0.06			
			(2.02)						(1.54)			
DI repayment history * Stable				-0.01						-0.01		
				(-0.60)						(-0.77)		
DI repayment history * Crisis				-0.05						-0.06		
				(-1.34)						(-1.56)		
DI coverage intensity * Stable					-0.00						0.00	
					(-0.09)						(0.11)	
DI coverage intensity * Crisis					0.05						0.06	
					(1.51)						(1.59)	
DI coverage limit * Stable						0.01						0.01
						(0.81)						(0.98)
DI coverage limit * Crisis						0.02						0.02
						(0.45)						(0.57)
Size	0.40***	0.20***	0.22***	0.21***	0.21***	0.25***	0.26***	0.19***	0.21***	0.20***	0.20***	0.24***
	(42.71)	(5.00)	(5.53)	(5.19)	(5.12)	(5.23)	(16.65)	(4.12)	(4.66)	(4.49)	(4.38)	(4.63)
Credit							1.25***	0.02	0.02	0.03	0.03	0.03
							(29.20)	(0.83)	(0.84)	(1.03)	(1.11)	(0.85)
Trade							0.17***	0.02*	0.02	0.02	0.02	0.03*
							(12.91)	(1.71)	(1.63)	(1.62)	(1.59)	(1.70)
Globalisation							-1.53***	-0.65***	-0.63***	-0.68***	-0.66***	-0.85***
							(-12.52)	(-3.33)	(-3.20)	(-3.47)	(-3.37)	(-3.68)
FTA							-0.00	0.04	0.05	0.04	0.04	0.03
							(-0.02)	(1.15)	(1.20)	(1.08)	(1.13)	(0.75)
Currency union							-0.01	0.17***	0.16***	0.17***	0.17***	0.12*
							(-0.16)	(2.84)	(2.71)	(2.83)	(2.80)	(1.91)
Deposit rate							0.00	0.00	0.00*	0.00*	0.00*	0.00
							(0.37)	(1.64)	(1.71)	(1.66)	(1.65)	(1.49)
Internet							-1.20***	0.67***	0.66***	0.68***	0.67***	0.94***
							(-5.74)	(4.95)	(4.85)	(4.99)	(4.97)	(5.79)
Governance							0.55***	-0.20***	-0.15**	-0.16***	-0.17***	-0.08
							(14.44)	(-3.23)	(-2.44)	(-2.69)	(-2.77)	(-1.24)
Gravity country-pair controls	Yes	No	No	No	No	No	Yes	No	No	No	No	No
Country-pair fixed effect	No	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Bank country fixed effect	No	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Depositor country fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.553	0.946	0.946	0.946	0.946	0.949	0.582	0.946	0.946	0.946	0.946	0.950
Observations	20,820	10,763	10,763	10,763	10,763	7,694	20,820	10,763	10,763	10,763	10,763	7,694

Note: This table presents the estimates from ordinary least square regressions of cross-border deposits from depositor country j to bank country i in year t. All variable definitions can be found in Table A1 in the Appendix. The coefficients are reported in the top row, t-values are reported below in brackets. *, **, *** represent statistical significance at the 10%, 5% and 1% level, respectively.

Table 5. Testing the Emergency Actions Hypothesis

	Sample period 1998-2011							Sample period 2006-2009						
	All bank countries				Bank countries in crisis			All bank countries				Bank countries in crisis		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Explicit DI Introduction	0.65***							0.20***						
* 2008/09 Crisis Period	(7.55)							(2.58)						
Official government guarantee		0.23***			0.22***				0.10***			0.09***		
* 2008/09 Crisis Period		(8.96)			(8.29)				(3.27)			(2.87)		
Limited government guarantee			0.24***			0.27***				0.09**			0.10**	
* 2008/09 Crisis Period			(7.09)			(7.92)				(2.30)			(2.57)	
Unlimited government guarantee				0.22***			0.18***				0.11***			0.09**
* 2008/09 Crisis Period				(7.09)			(5.41)				(2.87)			(2.18)
Size	0.02	0.05**	0.03	0.10***	0.09***	0.07***	0.16***	0.06	0.09	0.06	0.13**	0.18***	0.15**	0.24***
	(0.98)	(2.20)	(1.35)	(4.25)	(3.31)	(2.73)	(6.15)	(0.92)	(1.37)	(0.90)	(2.07)	(2.59)	(2.20)	(3.51)
Gravity country-pair controls	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Country-pair fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank country fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Depositor country fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.925	0.925	0.933	0.928	0.929	0.934	0.934	0.951	0.951	0.960	0.953	0.956	0.963	0.959
Observations	25,218	25,218	20,388	22,552	21,378	17,573	18,712	9,223	9,223	7,585	8,272	7,588	6,323	6,637

Note: This table presents the estimates from difference in difference regressions of cross-border deposits from depositor country j to bank country i in year t. Regressions (1)-(4) and (8)-(11) are based on a full sample of country-pairs including all 20 bank countries, while regressions (5)-(7) and (12)-(14) are based on a subsample of country-pairs including only those bank countries that have experienced the 2008/9 crisis. All variable definitions can be found in Table A1 in the Appendix. The coefficients are in the first row, the t-values are below in brackets. *, **, *** represent statistical significance at the 10%, 5% and 1% level, respectively.

Table A1. Variable definitions and sources

Variable	Definition	Unit	Source
Dependent variable			
Cross-border deposits	Bank liabilities vis-à-vis non-bank sector (deposits) from depositor country to bank country, ln of amounts outstanding adjusted for exchange rate changes	US$mln	BIS: Locational Banking Statistics; confidential dataset
Independent variables			
Deposit insurance variables			
Explicit DI	Dummy equal to 1 if a country an explicit deposit insurance exists	1/0	World Bank: Bank Regulation and Supervision Surveys; available at http://go.worldbank.org/SNUSW978P0
DI power	Index to measure the power of the deposit insurance authority, higher values indicate more power	0-4	
DI moral hazard mitigation	Index to measure the degree to which actions are taken to mitigate moral hazard, higher values indicate greater mitigation of moral hazard	0-2	
DI repayment history	Index to measure the repayment history last time there was a bank run, higher values indicate better repayment history	0-2	
DI coverage intensity	Index to measure the coverage intensity, higher values indicate better coverage for depositors	0-3	
DI coverage limit	ln of the coverage limit in US dollar	US$	
Emergency actions			
Explicit DI introduction	Dummy equal to 1 if a country introduced an explicit deposit insurance since 2008	1/0	World Bank: Deposit Insurance Database (Demirgüç-Kunt et al., 2014); available at http://go.worldbank.org/XU2OVOGZJ0
Official government guarantee	Dummy equal to 1 if a country's government provides an official guarantee since 2008	1/0	
Limited government guarantee	Dummy equal to 1 if a country's government provides a limited guarantee since 2008	1/0	
Unlimited government guarantee	Dummy equal to 1 if a country's government provides an unlimited guarantee since 2008	1/0	
Time dummies			
Stable	Dummy equal to 1 if a depositor country does not experience a systemic banking crisis in year t	1/0	IMF: Systemic Banking Crises Database (Laeven and Valencia, 2008, 2010, 2012)
Crisis	Dummy equal to 1 if a depositor country experiences a systemic banking crisis in year t	1/0	
2008/09 Crisis Period	Dummy equal to 1 for years 2008 to 2011		Authors' calculations
Country-pair control variables			
Size	Size of the two countries based on GDP, measured as the sum of the ln amounts for bank and depositor country	US$mln	World Bank: World Development Indicators Database
Credit	Domestic credit to the private sector as percent of GDP, measured as the product of bank and depositor country	0-1	IMF: International Financial Statistics

(continued)

Table A1 continued. Variable definitions and sources

Variable	Definition	Unit	Source
Trade	Bilateral trade between bank and depositor country, measured as the ln of the sum of export and imports	US$mln	OECD: STAN Bilateral Trade Database
Globalization	Overall globalization with higher value indicating more globalisation, measured as the sum of the ln amounts for bank and depositor country	0-100	KOF Index of Globalization
FTA	Dummy equal to 1 if bank and depositor country belong to the same free trade area	1/0	Data provided on Andrew Rose's website at http://faculty.haas.berkeley.edu/arose
Currency union	Dummy equal to 1 if bank and depositor country belong to the same currency union	1/0	Ilzetzki et al. (2008); data available at http://personal.lse.ac.uk/ilzetzki/IRRBack.htm
Deposit rate	Depository interest rate difference, measured as the difference between bank and depositor country	%	IMF: International Financial Statistics
Internet	Percentage of population that has internet connection, measured as the product of bank and depositor country	0-1	UN: World Telecommunication/ITC Indicators Data; available at http://data.un.org/Explorer.aspx
Governance	Governance quality is measured as the average across the six individual governance indicators forVoice and Accountability, Political Stability & Absence of Violence, Government Effectiveness,Regulatory Quality,Rule of Law, and Control of Corruption; higher values indicate better governance, measured as the difference between bank and depositor country	-2.5-2.5	World Bank: Worldwide Governance Indicators; available at www.govindicators.org
Gravity country-pair control variables			
Distance	Great circle distance between capital cities	km	Great Circle Distances Between Capital Cities, at http://www.chemical-ecology.net/java/capitals.htm
Common border	Dummy equal to 1 if bank and depositor country share a land border	1/0	Data provided on Andrew Rose's website at http://faculty.haas.berkeley.edu /arose (Rose's original source is CIA World Factbook)
Common language	Dummy equal to 1 if bank and depositor country share a common language	1/0	
Common colony	Dummy equal to 1 if bank country ever colonized depositor country or vice versa (colony after 1945)	1/0	
Common legal system	Dummy equal to 1 if bank and depositor country share the same legal system	1/0	

Note: All deposit insurance proxies are originally measured on a country- and year-level. For the Safe Haven analyses, the proxy for the bank country is used, e.g. $Proxy_{it}$. For the Regulatory Arbitrage analyses, the difference between the bank and depositor country is used, e.g. $Proxy_{ijt} = Proxy_{it} - Proxy_{jt}$.

Table A2. Deposit insurance indices

Variable	Questions	Index
DI power	(1) Does the deposit insurance authority make the decision to intervene in a bank? (2) Does the deposit insurance authority have the legal power to cancel or revoke deposit insurance for any participating bank? (3) Can the deposit insurance authority take legal action for violations against laws, regulations, and bylaws against bank officials? (4) Has the deposit insurance authority ever taken legal action for violations against laws, regulations, and bylaws against bank officials?	(1)+(2)+(3)+(4)
DI moral hazard mitigation	(1) Is the deposit insurance funded by banks? (2) Do deposit insurance fees charged to banks vary based on some assessment of risk?	(1)+(2)
DI repayment history	(1) Were insured depositors wholly compensated (to the extent of legal protection) the last time a bank failed? (2) Were any deposits not explicitly covered by deposit insurance at the time of the failure compensated when the bank failed?	(1)+(2)
DI coverage intensity	(1) Is there a no limit per person? (2) Is there no formal coinsurance? (3) Does the deposit insurance scheme include coverage of foreign currency deposits?	(1)+(2)+(3)

Note: If a question is answered with yes, a value of 1 is assigned. If a question is answered with no, a value of 0 is assigned. The index for each deposit insurance characteristic equals the sum of the values to all relevant questions.

Table A3. Summary statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Cross-border deposits	20,820	2.89	2.74	0	13.13
Bank country					
Explicit DI	20,820	0.91	0.29	0	1
DI power	18,870	1.10	0.95	0	4
DI moral hazard mitigation	18,870	1.28	0.55	0	2
DI repayment history	18,870	0.99	0.63	0	2
DI coverage intensity	18,870	1.61	0.86	0	3
DI coverage limit	16,460	10.04	0.95	7.60	11.77
Country-pair differences					
Explicit DI	20,820	0.33	0.58	-1	1
DI power	10,763	0.02	1.51	-4	4
DI moral hazard mitigation	10,763	0.29	0.91	-2	2
DI repayment history	10,763	0.10	0.97	-2	2
DI coverage intensity	10,763	0.10	1.13	-3	3
DI coverage limit	7,694	0.36	1.97	-9.79	6.44
Size	20,820	23.53	2.78	14.12	35.37
Credit	20,820	0.57	0.55	0.00	5.95
Trade	20,820	5.19	2.88	0.00	13.25
Globalisation	20,820	8.49	0.41	5.06	9.07
FTA	20,820	0.07	0.26	0	1
Currency union	20,820	0.05	0.22	0	1
Deposit rate	20,820	-3.80	10.74	-202.63	27.73
Internet	20,820	0.08	0.11	0.00	0.71
Governance	20,820	1.04	1.09	-2.21	3.50
Explicit DI Introduction	25,218	0.04	0.20	0	1
Official government guarantee	25,218	0.30	0.46	0	1
Limited government guarantee	25,218	0.11	0.31	0	1
Unlimited government guarantee	25,218	0.19	0.39	0	1

Table A4. Systemic banking crises

Year	Number of countries in crisis
1998	16
1999	11
2000	9
2001	7
2002	3
2003	3
2004	2
2005	1
2006	0
2007	2
2008	22
2009	23
2010	23
2011	23

Note: Borderline systemic banking crises are included.

Table A5. Robustness checks regarding the testing of the Safe Haven Hypothesis

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Explicit DI	0.55***						0.53***					
	(5.94)						(5.77)					
DI power		0.06***						0.06***				
		(3.27)						(3.44)				
DI moral hazard mitigation			0.10**						0.10**			
			(2.43)						(2.45)			
DI repayment history				0.04*						0.06**		
				(1.65)						(2.15)		
DI coverage intensity					0.02						0.01	
					(0.45)						(0.23)	
DI coverage limit						0.62***						0.64***
						(6.53)						(6.64)
Size	0.38***	0.16***	0.15***	0.15***	0.15***	0.18***	0.26***	0.19***	0.18***	0.18***	0.18***	0.21***
	(22.00)	(2.89)	(2.79)	(2.78)	(2.77)	(3.22)	(9.36)	(3.23)	(3.17)	(3.18)	(3.12)	(3.59)
Credit							1.23***	-0.10**	-0.10**	-0.10**	-0.09**	-0.08*
							(16.05)	(-2.14)	(-2.08)	(-2.08)	(-1.98)	(-1.70)
Trade							0.16***	0.03	0.03*	0.03	0.03	0.06***
							(6.83)	(1.61)	(1.75)	(1.55)	(1.58)	(3.34)
Globalisation							-1.82***	0.19	0.19	0.08	0.12	0.15
							(-8.24)	(0.77)	(0.77)	(0.32)	(0.48)	(0.60)
FTA							-0.06	0.03	0.03	0.03	0.03	0.07
							(-0.57)	(0.49)	(0.44)	(0.48)	(0.46)	(1.18)
Currency union							-0.01	0.37***	0.34***	0.36***	0.35***	0.36***
							(-0.09)	(4.09)	(3.79)	(3.95)	(3.92)	(4.12)
Deposit rate							-0.00	0.00	0.00	0.00	0.00	0.00
							(-0.06)	(0.97)	(1.13)	(1.15)	(1.20)	(0.76)
Internet							-1.49***	1.15***	1.17***	1.16***	1.14***	1.17***
							(-4.21)	(5.86)	(5.94)	(5.87)	(5.77)	(5.84)
Governance							0.64***	-0.01	0.03	0.01	0.02	0.12*
							(9.27)	(-0.09)	(0.48)	(0.20)	(0.24)	(1.68)
Gravity country-pair controls	Yes	No	No	No	No	No	Yes	No	No	No	No	No
Country-pair fixed effect	No	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Bank country fixed effect	No	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Depositor country fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.547	0.924	0.924	0.924	0.924	0.932	0.577	0.925	0.925	0.925	0.925	0.934
Observations	6,246	5,661	5,661	5,661	5,661	4,964	6,246	5,661	5,661	5,661	5,661	4,964

Note: This table presents the estimates from ordinary least square regressions of cross-border deposits from depositor country j to bank country i in year t. The sample period is restricted to the years 1998, 2002 and 2006. All variable definitions can be found in Table A1 in the Appendix. The coefficients are reported in the top row, t-values are reported below in brackets. *, **, *** represent statistical significance at the 10%, 5% and 1% level, respectively.

Table A6.Robustness checks regarding the testing of the Regulatory Arbitrage Hypothesis

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Explicit DI	0.41***						0.33***					
	(5.25)						(4.29)					
DI power		0.04**						0.04**				
		(2.17)						(2.28)				
DI moral hazard mitigation			0.11***						0.08**			
			(3.06)						(2.29)			
DI repayment history				0.03						0.03		
				(1.44)						(1.08)		
DI coverage intensity					-0.01						-0.00	
					(-0.31)						(-0.15)	
DI coverage limit						0.01						0.01
						(0.52)						(0.47)
Size	0.39***	0.25***	0.29***	0.28***	0.27***	0.40***	0.28***	0.31***	0.34***	0.33***	0.33***	0.42***
	(23.15)	(3.00)	(3.48)	(3.29)	(3.22)	(3.79)	(10.05)	(3.30)	(3.64)	(3.48)	(3.48)	(3.55)
Credit							1.21***	-0.07	-0.06	-0.06	-0.06	-0.06
							(15.78)	(-1.29)	(-1.19)	(-1.12)	(-1.14)	(-0.91)
Trade							0.15***	0.03	0.03	0.02	0.03	0.03
							(6.75)	(1.30)	(1.30)	(1.08)	(1.13)	(1.34)
Globalisation							-1.72***	-0.22	-0.19	-0.26	-0.28	-0.62
							(-7.84)	(-0.58)	(-0.52)	(-0.70)	(-0.76)	(-1.32)
FTA							-0.05	0.06	0.06	0.07	0.06	0.11
							(-0.46)	(0.65)	(0.72)	(0.78)	(0.73)	(1.14)
Currency union							-0.02	0.38***	0.37***	0.38***	0.39***	0.36***
							(-0.12)	(3.93)	(3.86)	(3.95)	(3.97)	(3.46)
Deposit rate							-0.00	-0.00	0.00	0.00	0.00	0.00
							(-0.30)	(-0.03)	(0.50)	(0.48)	(0.38)	(1.02)
Internet							-1.46***	0.90***	0.86***	0.88***	0.88***	1.20***
							(-4.10)	(3.40)	(3.23)	(3.33)	(3.32)	(3.70)
Governance							0.63***	-0.09	-0.02	-0.06	-0.06	0.04
							(9.14)	(-0.74)	(-0.20)	(-0.53)	(-0.51)	(0.29)
Gravity country-pair controls	Yes	No	No	No	No	No	Yes	No	No	No	No	No
Country-pair fixed effect	No	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Bank country fixed effect	No	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Depositor country fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.546	0.925	0.926	0.925	0.925	0.927	0.576	0.927	0.927	0.927	0.927	0.929
Observations	6,246	3,259	3,259	3,259	3,259	2,387	6,246	3,259	3,259	3,259	3,259	2,387

Note: This table presents the estimates from ordinary least square regressions of cross-border deposits from depositor country j to bank country i in year t. The sample period is restricted to the years 1998, 2002 and 2006. All variable definitions can be found in Table A1 in the Appendix. The coefficients are reported in the top row, t-values are reported below in brackets. *, **, *** represent statistical significance at the 10%, 5% and 1% level, respectively.

Table A7. Robustness checks regarding the testing of the Safe Haven in Crisis Hypothesis

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Explicit DI * Stable	0.54***						0.54***					
	(5.74)						(5.83)					
Explicit DI * Crisis	0.77***						0.42***					
	(4.88)						(2.70)					
DI power * Stable		0.06***						0.06***				
		(3.13)						(3.26)				
DI power * Crisis		0.09**						0.10**				
		(2.11)						(2.44)				
DI moral hazard mitigation * Stable			0.10**						0.10**			
			(2.37)						(2.38)			
DI moral hazard mitigation * Crisis			0.15***						0.17***			
			(2.65)						(3.05)			
DI repayment history * Stable				0.04						0.05*		
				(1.49)						(1.96)		
DI repayment history * Crisis				0.11**						0.14***		
				(2.05)						(2.66)		
DI coverage intensity * Stable					0.01						-0.00	
					(0.27)						(-0.03)	
DI coverage intensity * Crisis					0.09*						0.10**	
					(1.93)						(2.14)	
DI coverage limit * Stable						0.62***						0.64***
						(6.50)						(6.58)
DI coverage limit * Crisis						0.63***						0.65***
						(6.62)						(6.73)
Size	0.38***	0.16***	0.16***	0.16***	0.17***	0.19***	0.26***	0.19***	0.19***	0.19***	0.20***	0.22***
	(22.03)	(2.97)	(2.90)	(2.88)	(3.05)	(3.44)	(9.32)	(3.33)	(3.34)	(3.33)	(3.48)	(3.86)
Credit							1.24***	-0.10**	-0.11**	-0.11**	-0.12**	-0.10**
							(16.04)	(-2.27)	(-2.42)	(-2.41)	(-2.51)	(-2.14)
Trade							0.16***	0.03	0.03*	0.03	0.03	0.06***
							(6.87)	(1.58)	(1.69)	(1.52)	(1.54)	(3.27)
Globalisation							-1.83***	0.19	0.19	0.08	0.11	0.14
							(-8.28)	(0.76)	(0.76)	(0.33)	(0.47)	(0.58)
FTA							-0.06	0.03	0.03	0.03	0.03	0.07
							(-0.57)	(0.46)	(0.41)	(0.45)	(0.42)	(1.13)
Currency union							-0.01	0.36***	0.33***	0.35***	0.34***	0.35***
							(-0.06)	(4.05)	(3.66)	(3.82)	(3.74)	(3.93)
Deposit rate							-0.00	0.00	0.00	0.00	0.00	0.00
							(-0.16)	(1.05)	(1.25)	(1.25)	(1.39)	(0.94)
Internet							-1.52***	1.17***	1.22***	1.20***	1.21***	1.24***
							(-4.28)	(5.92)	(6.14)	(6.04)	(6.11)	(6.11)
Governance							0.64***	-0.01	0.03	0.01	0.01	0.11
							(9.29)	(-0.13)	(0.43)	(0.16)	(0.14)	(1.60)
Gravity country-pair controls	Yes	No	No	No	No	No	Yes	No	No	No	No	No
Country-pair fixed effect	No	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Bank country fixed effect	No	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Depositor country fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.547	0.924	0.924	0.924	0.924	0.932	0.577	0.925	0.925	0.925	0.925	0.934
Observations	6,246	5,661	5,661	5,661	5,661	4,964	6,246	5,661	5,661	5,661	5,661	4,964

Note: This table presents the estimates from ordinary least square regressions of cross-border deposits from depositor country j to bank country i in year t. The sample period is restricted to the years 1998, 2002 and 2006. All variable definitions can be found in Table A1 in the Appendix. The coefficients are reported in the top row, t-values are reported below in brackets. *, **, *** represent statistical significance at the 10%, 5% and 1% level, respectively.

Table A8. Robustness checks regarding the testing of the Regulatory Arbitrage in Crisis Hypothesis

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Explicit DI * Stable	0.40***						0.32***					
	(4.89)						(4.05)					
Explicit DI * Crisis	0.56***						0.41**					
	(3.11)						(2.32)					
DI power * Stable		0.04**						0.05**				
		(2.44)						(2.54)				
DI power * Crisis		-0.03						-0.03				
		(-0.62)						(-0.67)				
DI moral hazard mitigation * Stable			0.11***						0.08**			
			(3.05)						(2.27)			
DI moral hazard mitigation * Crisis			0.18*						0.16*			
			(1.92)						(1.72)			
DI repayment history * Stable				0.04*						0.03		
				(1.68)						(1.40)		
DI repayment history * Crisis				-0.08						-0.12		
				(-0.92)						(-1.41)		
DI coverage intensity * Stable					-0.01						-0.01	
					(-0.45)						(-0.29)	
DI coverage intensity * Crisis					0.07						0.08	
					(0.85)						(0.98)	
DI coverage limit * Stable						0.01						0.01
						(0.50)						(0.48)
DI coverage limit * Crisis						0.08						0.10
						(0.83)						(1.03)
Size	0.39***	0.28***	0.29***	0.29***	0.27***	0.39***	0.28***	0.33***	0.34***	0.35***	0.32***	0.41***
	(23.17)	(3.22)	(3.47)	(3.46)	(3.22)	(3.70)	(10.06)	(3.51)	(3.67)	(3.69)	(3.46)	(3.47)
Credit							1.21***	-0.07	-0.08	-0.06	-0.06	-0.06
							(15.75)	(-1.28)	(-1.36)	(-1.15)	(-1.09)	(-0.96)
Trade							0.15***	0.03	0.03	0.02	0.03	0.03
							(6.74)	(1.28)	(1.24)	(1.08)	(1.12)	(1.31)
Globalisation							-1.72***	-0.27	-0.21	-0.28	-0.27	-0.61
							(-7.85)	(-0.73)	(-0.57)	(-0.76)	(-0.73)	(-1.31)
FTA							-0.05	0.05	0.06	0.07	0.06	0.11
							(-0.46)	(0.62)	(0.74)	(0.77)	(0.74)	(1.15)
Currency union							-0.02	0.39***	0.37***	0.39***	0.38***	0.35***
							(-0.12)	(3.99)	(3.77)	(3.99)	(3.96)	(3.38)
Deposit rate							-0.00	0.00	0.00	0.00	0.00	0.00
							(-0.29)	(0.09)	(0.46)	(0.61)	(0.36)	(1.00)
Internet							-1.47***	0.87***	0.89***	0.90***	0.88***	1.24***
							(-4.13)	(3.30)	(3.32)	(3.40)	(3.34)	(3.78)
Governance							0.63***	-0.09	-0.03	-0.06	-0.07	0.04
							(9.15)	(-0.72)	(-0.23)	(-0.51)	(-0.55)	(0.27)
Gravity country-pair controls	Yes	No	No	No	No	No	Yes	No	No	No	No	No
Country-pair fixed effect	No	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Bank country fixed effect	No	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Depositor country fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.546	0.926	0.926	0.925	0.925	0.927	0.576	0.927	0.927	0.927	0.927	0.929
Observations	6,246	3,259	3,259	3,259	3,259	2,387	6,246	3,259	3,259	3,259	3,259	2,387

Note: This table presents the estimates from ordinary least square regressions of cross-border deposits from depositor country j to bank country i in year t. The sample period is restricted to the years 1998, 2002 and 2006. All variable definitions can be found in Table A1 in the Appendix. The coefficients are reported in the top row, t-values are reported below in brackets. *, **, *** represent statistical significance at the 10%, 5% and 1% level, respectively.

Table A9. Correlations

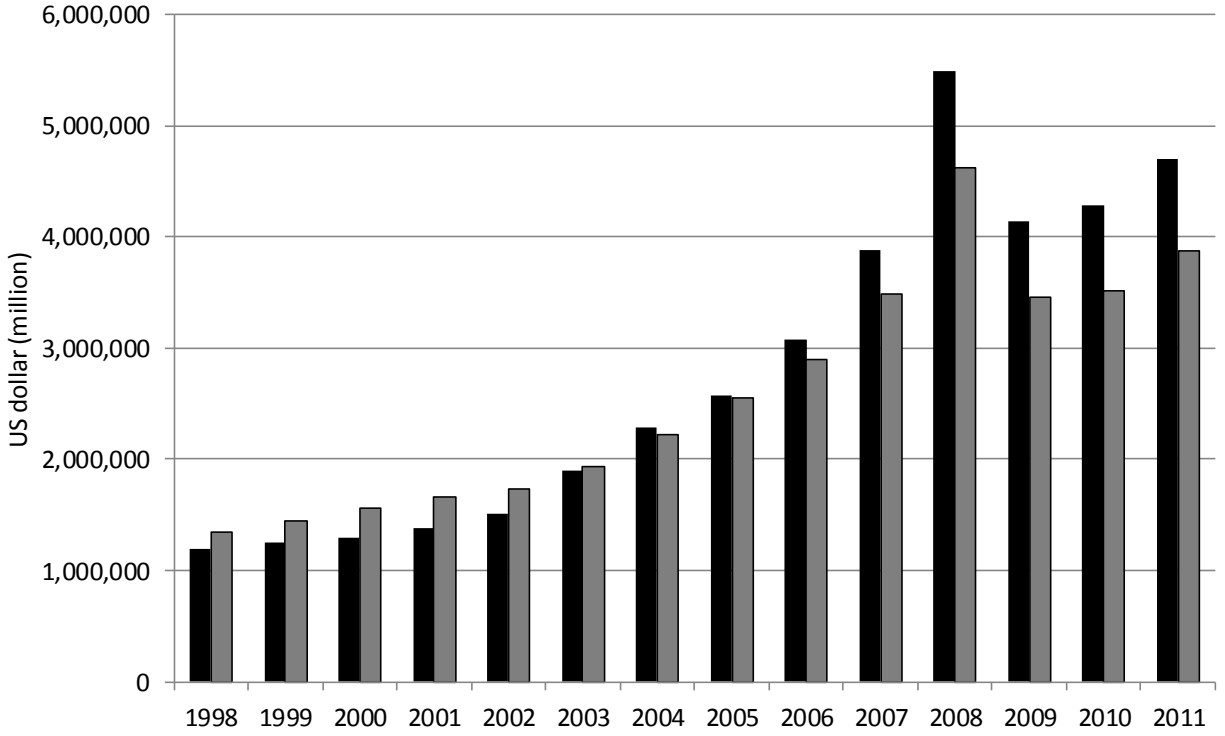
	Cross-border deposits	DI power	DI moral hazard mitigation	DI repayment history	DI coverage intensity	DI coverage limit
Panel A: Correlation in the sample of Table 1 when testing the Safe Haven Hypothesis						
Cross-border deposits	1.000					
DI power	0.116	1.000				
DI moral hazard mitigation	0.043	0.213	1.000			
DI repayment history	0.114	0.083	0.362	1.000		
DI coverage intensity	0.015	0.114	-0.270	-0.311	1.000	
DI coverage limit	0.093	0.098	0.540	0.233	-0.021	1.000
Panel B: Correlation in the sample of Table 2 when testing the Regulatory Arbitrage Hypothesis						
Cross-border deposits	1.000					
DI power	0.002	1.000				
DI moral hazard mitigation	-0.130	0.118	1.000			
DI repayment history	0.060	0.003	0.239	1.000		
DI coverage intensity	-0.009	0.119	-0.133	-0.092	1.000	
DI coverage limit	-0.123	0.039	0.371	0.160	0.009	1.000

(continued)

Table A9 continued. Correlations

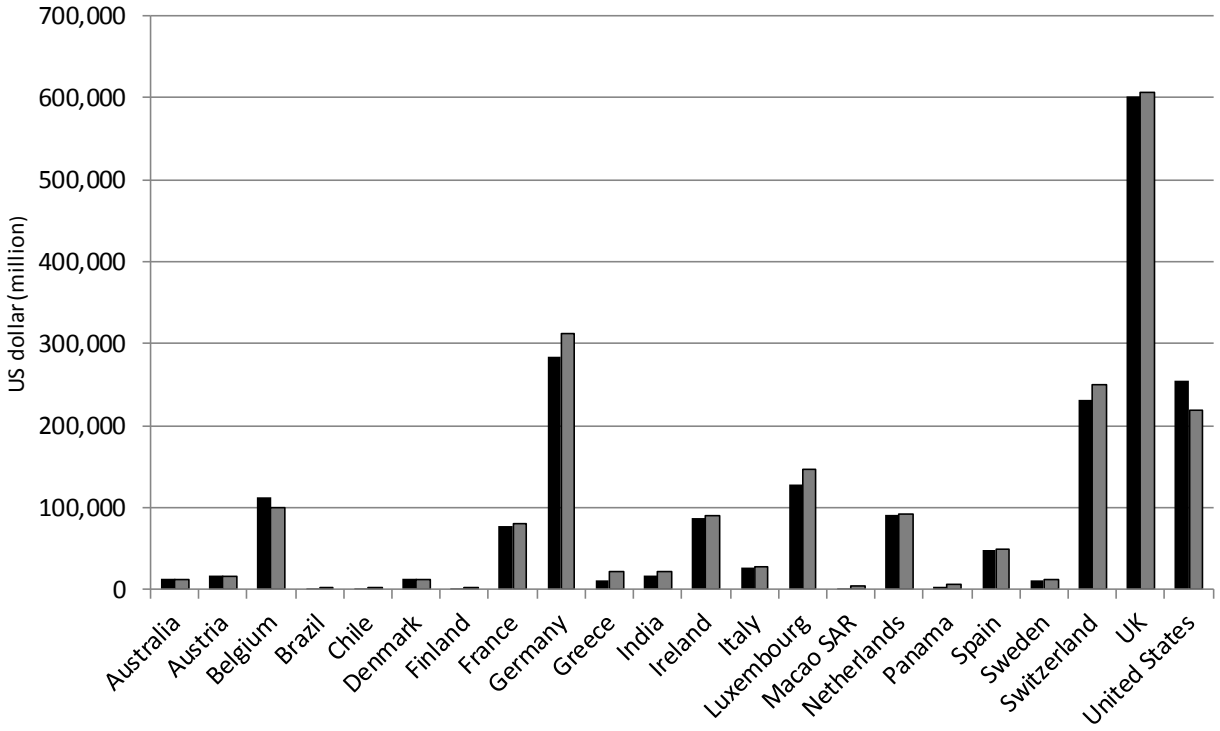
	Cross-border deposits	DI power * Stable	DI power * Crisis	DI moral hazard mitigation * Stable	DI moral hazard mitigation * Crisis	DI repayment history * Stable	DI repayment history * Crisis	DI coverage intensity * Stable	DI coverage intensity * Crisis	DI coverage limit * Stable	DI coverage limit * Crisis
Panel C: Correlation in the sample of Table 3 when testing the Safe Haven in Crisis Hypothesis											
Cross-border deposits	1.000										
DI power * Stable	0.106	1.000									
DI power * Crisis	0.030	-0.162	1.000								
DI moral hazard mitigation * Stable	0.032	0.299	-0.297	1.000							
DI moral hazard mitigation * Crisis	0.013	-0.224	0.648	-0.411	1.000						
DI repayment history * Stable	0.101	0.153	-0.209	0.450	-0.289	1.000					
DI repayment history * Crisis	0.026	-0.210	0.613	-0.386	0.853	-0.271	1.000				
DI coverage intensity * Stable	0.005	0.192	-0.248	-0.060	-0.343	-0.163	-0.322	1.000			
DI coverage intensity * Crisis	0.021	-0.212	0.632	-0.389	0.760	-0.273	0.712	-0.324	1.000		
DI coverage limit * Stable	0.040	0.305	-0.674	0.594	-0.836	0.395	-0.787	0.337	-0.800	1.000	
DI coverage limit * Crisis	0.000	-0.288	0.734	-0.430	0.936	-0.333	0.871	-0.378	0.876	-0.907	1.000
Panel D: Correlation in the sample of Table 2 when testing the Regulatory Arbitrage in Crisis Hypothesis											
Cross-border deposits	1.000										
DI power * Stable	0.004	1.000									
DI power * Crisis	-0.005	0.000	1.000								
DI moral hazard mitigation * Stable	-0.135	0.130	0.001	1.000							
DI moral hazard mitigation * Crisis	0.009	-0.001	-0.074	-0.027	1.000						
DI repayment history * Stable	0.056	-0.002	0.000	0.241	-0.009	1.000					
DI repayment history * Crisis	0.026	0.000	0.079	-0.007	0.243	-0.002	1.000				
DI coverage intensity * Stable	-0.011	0.119	0.000	-0.133	-0.009	-0.094	-0.002	1.000			
DI coverage intensity * Crisis	0.006	0.001	0.124	0.015	-0.131	0.005	-0.050	0.005	1.000		
DI coverage limit * Stable	-0.118	0.036	-0.007	0.374	0.003	0.160	-0.002	0.011	0.003	1.000	
DI coverage limit * Crisis	-0.051	-0.001	0.328	-0.008	0.256	-0.004	0.247	-0.003	-0.155	-0.005	1.000

Figure 1. Cross-border deposits over time



Note: This figure shows the total amount of cross-border deposits (CBD) between all 22 bank countries and all 131 depositor countries in our sample. Black bars represent unadjusted volumes of CBD, grey bars represent CBD volumes that are adjusted for exchange rate movements.

Figure 2. Cross-border deposit volumes for different bank countries



Note: This figure shows the average annual volume of cross-border deposits (CBD) that each of the 22 bank countries in our sample receives from all 131 depositor countries. Black bars represent unadjusted volumes of CBD, grey bars represent CBD volumes that are adjusted for exchange rate movements.